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CURRENT SERIAL RECORDS

CHERRY LEAF-SPOT and its control

• U.S. DEPARTMENT OF AGRICULTURE

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Figure 1.—Severe leaf-spot infection caused premature defoliation of this Montmorency cherry tree.

CHERRY LEAF-SPOT and its control

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The disease most seriously affecting the foliage of the cherry in the eastern United States is commonly known as leaf-spot, or shot-hole. It attacks sweet and sour varieties—sour cherries usually are most susceptible.

DAMAGE

Only a few leaves may be injured in mild outbreaks. In severe outbreaks, the tree may be defoliated before the fruit is mature (fig. 1). Trees that lose their leaves in the spring and early summer usually produce small, unevenly ripened fruit.

When infections are severe enough to cause premature defoliation, the weakened trees are easily injured by low temperatures the following winter. Entire blocks of trees have been killed in years when cold winter followed severe leaf-spot infections. Often, though, winter injury to weakened trees is limited to extensive killing of the buds, shoots, fruit spurs, and branches. If fruit buds and fruit spurs are injured, there will be a poor crop the following season.

Infections may also occur on the fruit stems, but damage from this type of infection ordinarily is of little importance.

Cherry leaf-spot has at times been very destructive in Connecticut, Illinois, Iowa, Michigan, Nebraska, New Jersey, and Pennsylvania.

Figure 2.—White spore masses can be seen on these infected leaves.

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DESCRIPTION

The disease first appears on affected leaves as small purplish spots, which later turn brown. These spots (figs. 2 and 3) are circular and at first the size of pin punctures. They enlarge to about one-fourth of an inch in diameter. Larger spots, with irregular shapes, may also be seen; these are formed by the merging of spots. During wet periods, whitish-pink masses of spores are found on the underside of the infected leaves (fig. 2).

After the spots have ceased to enlarge the formation of corky tissue between the relatively healthy adjacent tissue and the dead center may cause the affected areas to drop out. When dead areas drop out, the leaf has the "shot-hole" appearance (fig. 3).

Badly infected leaves turn yellow and drop off.

CAUSE

The causal organism is a fungus[1] that overwinters in fallen leaves. In the spring, spores (ascospores) are discharged from infected areas on the old leaves and drift in wind currents to the new leaves, where they start infections. The fungus in the newly

Figure 3. — Diseased tissue is beginning to fall out of these leaves. When diseased areas fall out, leaves have the characteristic "shot-hole" appearance.

[1] *Coccomyces hiemalis* Higgs. Before the discovery of its ascogenous stage it was called *Cylindrosporium podi* Karst.

infected leaves produces "summer" spores (conidia), which are carried by rain and wind to other leaves. Thus, if weather conditions are favorable for fungus growth, infections become increasingly abundant as the season advances.

Long rainy periods during the summer and fall result in heavy infection, which is followed by yellowing and dropping of leaves.

CONTROL

Early infections can be reduced by cultivating the orchard to bury the past season's leaves. Cultivate before the trees are in full bloom.

The principal control measure is the periodic application of fungicidal sprays to the trees during the growing season.

Preparing Sprays

Several fungicides give effective control of leaf-spot:

- Bordeaux mixture.
- Fixed coppers (proprietary compounds of varying copper content).
- Liquid lime-sulfur.
- Organic fungicides (captan, dodine, ferbam, glyodin).
- Cycloheximide, an antibiotic.

A typical bordeaux mixture is 2 pounds of copper sulfate plus 6 pounds of hydrated lime in 100 gallons of water.

Sprays of the proprietary copper compounds generally contain 8 to 12 ounces of actual copper and 3 pounds of fresh hydrated lime in 100 gallons of water.

- **Never use compounds that contain copper to spray any sweet cherry variety or the English Morello variety of sour cherry; such compounds may severely injure these copper-sensitive varieties.**

Liquid lime-sulfur is usually prepared by mixing 1 to 2 gallons of the commercial product in 100 gallons of water.

The amounts of organic fungicide usually recommended to use in 100 gallons of water are—

- 1½ pints to 1¼ quarts of glyodin.
- 2 pounds of captan or ferbam.
- ½ pound of dodine.

The strength of the solution made with cycloheximide is stated in parts per million (p.p.m.), instead of pounds per 100 gallons. A solution containing 1 to 2 p.p.m. is used for cherry leaf-spot control. The commercial form of this antibiotic is usually sold in the form of tablets. Each tablet dissolved in 100 gallons of water gives a solution containing 1 p.p.m. of the antibiotic.

Applying Sprays

Apply spray five times:

1. As soon as the petals have fallen.
2. When approximately three-fourths of the shucks have dropped.
3. About 10 days after the second spray.
4. Ten days to 2 weeks after the third spray.
5. Immediately after harvest.

The first spray is timed to prevent infection from spores (ascospores) that develop in leaves on the ground. The next three sprays are timed to prevent infection from ascospores and from spores (conidia) that develop in infected leaves on the tree. The postharvest spray protects foliage after the fruit is picked.

• Cycloheximide has a tendency to cause injury when used early in the season. Its use is not recommended on bearing trees before the cherries are at least three-eighths of an inch in diameter; fruits usually do not attain this size until 4 to 6 weeks after bloom.

Thorough coverage of all parts of the tree is important because leaves not covered by protective chemical are subject to attack by the fungus. Success of the program depends on keeping a chemical barrier between the host and the spores.

Material To Use

Recommendations vary from area to area; if you are a commercial cherry grower, use the material recommended by your State agricultural college for your locality.

• In using fungicides or any other agricultural chemical, follow directions on the label regarding use and storage of the product.

If you have only a few trees, you can avoid the complicated spray schedule for commercial orchards by using one of the "all-purpose fruit sprays." Several formulations of these proprietary mixtures are available at garden supply stores. Before you purchase such a product, be sure the label states that it can be used on cherries. Also be sure that it does not contain copper, if it is to be used on copper-sensitive varieties.

This leaflet supersedes Farmers' Bulletin 1053, "Control of Cherry Leaf-Spot."

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